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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1771

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Applicati n N .</b>		<b>Applicant(s)</b>	
	09/714,658		GEHLSSEN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Victor S Chang		1771	

**-- The MAILING DATE f this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 38-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 and 43-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-37 and 43-46, drawn to a foam article, classified in class 428, subclass 313.5.
- II. Claims 38-42, drawn to a foam-in-place article, classified in class 428, subclass 305.5.

2. The inventions are distinct, each from the other because:

Inventions Group I and Group II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions Group I has a pre-formed shape, while Group II forms in place.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Harold Knecht III on 7/12/2002 a provisional election was made with undecided traverse to prosecute the invention of Group I, claims 1-37 and 43-46. Affirmation of this election must be made by applicant in replying to this Office action. Claims 38-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, the phrase "foam is uniaxially or multi-axially oriented" is vague and indefinite. While it is typical for films to be produced with molecular orientation, it is not clear to the Examiner how a foam can be oriented at the molecular level. Does this intended to claim the shape of the foam in any particular shape?

In claim 11, line 2, the phrase "contains microvoids between or a separation of said matrix and said expandable microspheres" is incomprehensible, i.e., the location of the microvoids and the structure of the "separation" are vague and indefinite.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 6-9, 12, 17-18, 20-30, 33, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darvell et al. (US 4855170).

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Darvell's invention is directed to a pressure-sensitive adhesive-coated sheet material comprising in combination a sheet backing bearing on at least one surface a layer of normally tacky and pressure-sensitive adhesive containing up to about 2/3 by volume of resilient non-tacky hollow thermoplastic polymeric spheres (column 3, lines 20-27). All of the copolymer spheres are substantially completely surrounded by the pressure-sensitive adhesive (column 3, lines 32-34). It is possible to include the unexpanded microspheres in the PSA and substantially heat them to effect expansion (column 4, lines 9-11). The polymeric microspheres can be added to an adhesive system after the adhesive matrix has been polymerized; it is also possible and sometimes desirable, however, to add them to an adhesive monomer system prior to polymerization (column 4, lines 17-22). The overall surface and bulk properties of the composite will depend on the concentration and distribution of the microspheres (i.e., homogeneous or asymmetric, such as increased concentration near the adhesive surface) (column 5, lines 39-43). As such, a family of adhesive constructions can be tailored to exhibit specified initial adhesion, controlled adhesion build, shear strength, recoverable compressibility and if desired, differential adhesion (column 5, lines 44-49).

For claims 1, Darvell does not expressly state that at least one of the major surfaces of the foam being smooth to a Ra value less than 75  $\mu\text{m}$ . However, Darvell does teach that when the adhesive layer forms a continuous matrix that is strippably bonded to the backing, the resultant foamlike transfer tape is suitable for mounting molding strips on automobiles, dispensers on walls, etc. (column 3, lines 48-52). It is noted that the strippable transfer tape must inherently have at least one smooth major

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surface. Note also as evidence of the state of the art JP 09328662 A, which discloses a pressure sensitive adhesive transfer tape having a typical release paper with a surface roughness less than or equal to 20 micron (Derwent Abstract of JP 09328662 A). As such, it would have been obvious to one having ordinary skill to make a microspheres containing foam, as taught by Darvell, with one of the foam surface being smooth to a Ra value less than 75  $\mu\text{m}$ , motivated by the desire to use it as mounting strips on flat surfaces.

For claims 2-3, 6-8, 23-30, 33, and 37, Darvell lacks express teachings of the microspheres having an uniform size distribution, the standard deviation of foam density and thickness, and the amount of microsphere breakage. However, these are each believed to be either inherently disclosed, or an obvious optimization to one of ordinary skill in the art, motivated by the desire to achieve uniform foam properties for applications.

For claim 9, Darvell teaches that it is known the foam-like products are suitable for decorative coatings, padding, and gaskets, etc. (column 2, lines 10-12).

For claims 12 and 17, Darvell teaches that conventional additives such as dyes, pigments, fumed silica, chopped fibers, hollow glass microspheres, fillers, catalysts, crosslinking agents, and the like can be included in the adhesive to achieve specific effects (column 6, lines 58-62).

For claims 18, Darvell shows that a microshpere containing foam is made from a modified copolymer of isooctylacrylate and acrylic acid (Example 1, column 10, lines 9-10).

For claims 20-22, Darvell teaches that separately formed microbubble-free PSA layers can be laminated to one or both surfaces of a PSA layer containing polymeric microbubbles (column 6, lines 58-65).

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darvell et al. (US 4855170) either individually, or in view of Wolinski et al. (US 3864181) for claim 4, or in view of Mazurek et al. (US 5650215) for claim 5.

The teachings of Darvell are again relied upon as set forth above.

For claims 4 and 5, Darvell lacks the teachings of embossing or micro-replicating a pattern on the polymer foam surface. However, the Examiner takes Official Notice that embossing or micro-replicating a pattern on polymer foam surface is well known.

Alternatively, for claim 4, Wolinski teaches that it is advantageous to work, cut, print, emboss, crease, glue and stamp the microsphere containing coating prior to foaming using conventional techniques and equipment without need to resort to special modifications necessary with foamed materials (column 6, lines 57-61). As such, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to implement embossing pattern on the polymer foam surface, motivated by the desire to achieve an esthetic appearance.

With respect to claim 5, alternatively, Mazurek teaches the performance properties of the pressure-sensitive adhesive articles can be tailored by varying the microstructure of the pressure-sensitive adhesive (Abstract and Fig. 1). In Example 14, the microstructure is embossed and replicated on a foam surface (column 23, lines 3-12). As such, in the absence of unexpected results, it would have been obvious to one

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of ordinary skill to micro-replicate a pattern on a polymer foam surface, motivated by the desire to tailor the adhesive performance, as taught by Mazurek.

**10.** Claims 31-32 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darvell et al. (US 4855170) either individually, or in view of Wolinski et al. (US 3864181).

For claims 31-32 and 34-36, Darvell does not expressly state the molecular weight and shear viscosity of the polymers. However, it is believed that selecting suitable molecular weight and consequently the related suitable shear viscosity (i.e., typically there is a proportional relation between molecular weight and shear viscosity) for appropriate polymer processing methods and improved mechanical strength of the polymers are believed to be either inherently disclosed, or an obvious optimization to one of ordinary skill in the art. Alternatively, Wolinski teaches that a crosslinked acrylic polymer based foamable coating formulation was prepared from an acrylic polymer which has a molecular weight from about 200,000 to 500,000 (column 10, lines 31-34). As such, it would be obvious to one of ordinary skill in the art, based on Wolinski's teaching, to optimize the molecular weight, and therefore the shear viscosity, of Darvell's polymer, motivated by the desire to optimize the processability and the mechanical strength of the foam-like product.

**11.** Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darvell et al. (US 4855170) either individually, or in view of Esmay et al. (US 4415615).

The teachings of Darvell are again relied upon as set for the above.



For claims 13-16, Darvell lacks specific teachings of having at least one discrete structure bonded to the polymer foam, and the foam is a multilayer article. However, the Examiner takes Official Notice that using coextrusion and/or multilayer lamination processes to form various polymer foam bonded to discrete structure and/or a multilayer article are common and well known. Alternatively, Esmay shows a multilayer structure of reinforced micorsphere containing foam sandwiched between two plastic films (Fig. 3 and column 6, lines 27-30). As such, it would have been obvious to one of ordinary skill in the art to make a polymer foam bonded to a discrete structure, motivated by the desire to reinforce the mechanical strength of the polymer foam.

**12.** Claims 19 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darvell et al. (US 4855170) in view of Veasley et al. (US 5024880).

The teachings of Darvell are again relied upon as set forth above. Darvell lacks a specific teaching of using a polymer blend of thermoplastic elastomers to form the polymer matrix. Veasley's patent teaches a cellular pressure-sensitive adhesive membrane possessing a high degree of compression recovery comprising from about 70 parts to about 98 parts of an acrylic polymer, and from 0 to about 25 parts of a monoethylenically unsaturated polar copolymerizable monomer, and correspondingly, from about 30 parts to about 2 parts of a saturated hydrocarbon elastomer or blend of hydrocarbon elastomers containing at least one segment having a lower glass transition temperature than the acrylic copolymer. The adhesive has at least a first phase and a second phase, the first phase consisting primarily of the elastomer, and at least one phase is a continuous phase (Abstract). It is also noted that Veasley's polymers are

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inherently free of urethane or urea crosslinks. As such, it would have been obvious to one of ordinary skill in the art to use Veasley's polymer blend to make Darvell's foam-like article, motivated by the desire to improve the low temperature shock resistance of the foam, as taught by Veasley.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S Chang whose telephone number is 703-605-4296. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

VSC  
VSC  
July 25, 2002

DANIEL ZIRKER  
PRIMARY EXAMINER  
GROUP 1900-  
1700

*Daniel Zinker*